Lower Yakima Valley Nitrate Study: Third Party Review of Draft Report (December 16th 2011)

Thank you for agreeing to be a third-party reviewer of the draft report "Relation between Nitrates in Water Wells and Potential Sources in the Lower Yakima Valley, Washington". As the report discusses, we started this project several years ago with EPA's Ada Laboratory to evaluate the possible link between the high levels of nitrate detected in residential drinking water wells and the likely sources of those nitrates (dairies, irrigated cropland, and septic systems). Nitrate levels in residential drinking water wells above the EPA drinking water standard (10 mg/L) have been a problem in the Lower Yakima Valley for many years. A study completed by county, state, and federal agencies found about 12% of residential water wells had nitrate levels above the EPA drinking water standard.

The challenge has always been to determine the sources of that contamination. In order to try and identify those sources, EPA Region 10 worked with the Ada Laboratory to utilize different compounds and analytical techniques to try to trace the nitrate back to specific sources. The draft report presents the results of the sampling conducted between February 2010 and April 2010 at residential homes, dairies, cropland, and wastewater treatment plants that served as surrogates for septic systems.

Purpose of Review

The objective of the third-party review is to get an independent assessment of the report. We have provided you with specific questions we are hoping you can address. While we would appreciate any editorial comments you may have, we are more interested in your technical and scientific input on the accuracy and validity of what we have stated. If you identify any technical errors or claims which are unsupported by the data, please bring them to our attention. Also, in the event that you find content in our data where you believe we have failed to adequately stress or make a case for a linkage you observe, please bring that to our attention.

Report Structure

There are four main files that we are providing for your review.

1. Main text of report along with appendix B, C and D (we are still working on appendix E).
2. Appendix A which includes all the data tables for the report. Appendix A is organized by the different chemical classes analyzed or analytical techniques.
3. Table 1 (Study Design), Table 13 (results from the dairy cluster for veterinary pharmaceuticals) and Table 14 (results from the dairy cluster for the hormones from the University of Nebraska Laboratory). The reason these tables are separate is because they are very large and do not fit in the main report.
4. Figures 1-15c. We thought it best to have the figures independent to make for easier review.

For the final report we will compile all the information into a single document.

Questions

1. Are the purpose, scope, and objectives of the project clear?
2. Is it clear why we selected certain chemical classes (e.g., hormones) or analytical techniques (e.g., isotopic analysis) to serve as potential tracers for nitrate contamination?
3. Is the experimental design clear?
4. Is the approach taken for evaluating the isotopic data reasonable given the results from the study and the literature on isotopic analysis (e.g., δ15N-NO3 water well values greater than 8.4‰ characterized as dominated by animal waste; δ15N-NO3 water well values less than 2.0‰ characterized as dominated by fertilizer; and δ15N-NO3 water wells values between 2.0‰ and 8.4‰ being characterized as isotopically in determinant as to animal waste and/or fertilizer).
5. Are the conclusions supported by the results?
6. Are there results which could be more strongly used to link nitrate contamination to sources?
7. Are the uncertainties adequately addressed and clearly articulated?

Timeline/Next Steps

We would appreciate any comments you have by **Friday January 13th.** If this timeframe does not work for you please give me a call (206-553-1597) or email (cox.michael@epa.gov). Once we get your comments we will review and incorporate the comments and then have one more internal EPA Region 10 review. Our hope is to have the final report out by early March 2012.